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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/773,139	02/09/2004	Hiroaki Jo	118428	5438

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EXAMINER

KOVALICK, VINCENT E

ART UNIT	PAPER NUMBER
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2629

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/17/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/773,139

Applicant(s)

JO, HIROAKI

Examiner

Vincent E. Kovalick

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 January 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 and 11-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 3-6, 14 and 17-20 is/are allowed.
- 6) ☒ Claim(s) 1, 2, 7-9, 11-13, 15 and 16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 1/25/07.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

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DETAILED ACTION

Response to Amendment

1. This Office Action is in response to Applicant's Amendment dated January 17, 2007 in response to USPTO Office Action dated October 25, 2006.

The cancellation of claim 10, the amendments to claims 1, 3, 7, 9, 11 and the addition of new claims 17-20 have been noted and entered in the record.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-2 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mikami et al. (Pub. No. US 2003/0111966) taken with Komiya (Pub. No. US 2003/0030601) in view of Tsumura et al. (Pub. No. 2003/0169379).

Relative to claims 1 and 13, Mikami et al. **teaches** an electro-optic image display apparatus (pgs. 2/3, paras. 0012-0033); Mikami et al. further **teaches** an electronic device comprising a plurality of unit circuits in correspondence with intersections of a plurality of first signal lines and a plurality of second signal lines; with each active element controlling the drive voltage or the drive current (pg. 2 para. 0013). Mikami et al. **does not teach** each unit circuit including electronic elements and active elements, each electronic element having a first terminal and a second terminal and being driven by a drive voltage applied to the first terminal or by a drive current flowing through the first terminal and the second terminal, and the plurality of unit circuits including a unit circuit in which at least two electronic elements are electrically connected in parallel with an active element.

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Komiya **teaches** an organic EL electro-optical circuit (pg. 1, paras. 0010-0013); Mikami et al. further **teaches** each unit circuit including electronic elements and active elements, each electronic element having a first terminal and a second terminal and being driven by a drive voltage applied to the first terminal or by a drive current flowing through the first terminal and the second terminal (pg. 2, paras. 0031-0032 and Fig. 3).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to provide to the device as taught by Mikami et al. the feature as taught by Komiya in order to put in place and connect the active elements necessary to complete the display matrix; once the signal lines are established, to complete the display panel the pixel elements are then put in place to correspond and connect at the intersections of the first signal lines (data lines) and the second signal lines (gate lines).

Mikami et al. taken with Komiya **does not teach** the plurality of unit circuits including a unit circuit in which at least two electronic elements are electrically connected in parallel with an active element.

Tsumura et al. **teaches** a liquid crystal display apparatus (pgs. 3/4, paras. 0023-0034); Tsumura et al. further **teaches** the plurality of unit circuits including a unit circuit in which at least two electronic elements are electrically connected in parallel with an active element (pg. 1, para. 0009 and Fig. 22).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to provide to the device as taught by Mikami et al. taken with Komiya the feature as taught by Tsumura et al. in order to put in place the means to implement low-voltage driving for a number of driving modes with a high image quality that is crosstalk free.

Regarding claim 2, Komiya further **teaches** the said electronic device further comprising a plurality of power lines, in each unit circuit, the active element is electrically connected between the electronic element and corresponding one of the power lines (Fig. 3, item PVDD)

4. Claims 7-8, 11 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mikami et al. taken with Komiya in view of Tsumura et al. as applied to claim 1 in item 3 hereinabove, and further in view of Hakyashi (Pub. No. US 2001/0011898) taken with Martin et al. (USP 6,356,248).

Relative to claims 7 and 11, Mikami et al. taken with Komiya in view of Tsumura et al. **does not teach** each unit pixel having a plurality of electro-optical material placement areas where electro-optical material

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is placed, and the plurality of unit pixels including a unit pixel having at least one electro-optical material placement area in which the electro-optical material does not operate, among the plurality of operational electro-optical material placement areas.

Hayashi **teaches** an active matrix display device (pgs. 1/2 paras. 0009-0018); Hayashi further **teaches** each unit pixel having a plurality of electro-optical material placement areas where electro-optical material is placed (pg. 1, para. 0027 and Fig. 1 item LC).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to provide to the device as taught by Mikami et al. taken with Komiya in view of Tsumura et al., the feature as taught by Hayashi in order to put in place the electro-optical material with the desired display characteristics.

Mikami et al. taken with Komiya in view of Tsumura et al. taken with Hayashi **does not teach** the plurality of unit pixels including a unit pixel having at least one electro-optical material placement area in which the electro-optical material does not operate, among the plurality of operational electro-optical material placement areas.

Martin et al. **teaches** an electro-optical display structure (col. 2, lines 6-67 and col. 3, lines 1-38); Martin further **teaches** the plurality of unit pixels including a unit pixel having at least one electro-optical material placement area in which the electro-optical material does not operate, among the plurality of operational electro-optical material placement areas (pg. 5, lines 30-48 and Fig. 7).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to provide to the device as taught by Mikami et al. taken with Komiya in view of Tsumura et al. taken with Hayashi the feature as taught by Martin et al. in order to provide a pixel matrix structure that accommodates utilizing portions of the electro-optical material as well as providing portions of the electro-optical material disengaged from the electrical control means.

Regarding claims 8 and 16, Komiya further **teaches** the said electro-optical device material being an organic material (pg. 2, paras. 0031-0032).

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5. Claims 9 and 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Koyama et al. (Pub. No. 2003/0230750).

Regarding claim 9, Koyama et al. **teaches** a display device and electronic device using the same (pgs. 4/5, paras. 0056-0062); Koyama et al. further **teaches** an element substrate, comprising: an element formation area and a circuit formation area, which are disposed on a transparent substrate (pg. 8, paras. 0111-0112 and Fig. 9A); the element formation area being used to dispose a plurality of electronic elements of one electronic circuit whose optical characteristics or electrical characteristics change depending upon either a voltage level supplied between a first terminal and a second terminal of each electronic element or a current level supplied between the first terminal and the second terminal of each electronic element (pgs. 2/3, paras. 0032-0036 and Fig. 3), the circuit formation area being used to dispose a drive circuit including a transistor of the electronic circuit for supplying the voltage level or the current level in correspondence with an electrical signal to the first terminal of each electronic element (pg. 8, paras 0111-0112), and the element formation area being disposed at a central portion, and the element circuit formation area being disposed around the element formation area (Fig. 9A).

The difference between the teachings of the referenced prior art Koyama et al. and that of the instant invention is that said prior art Koyama et al. is directed primarily to a transparent substrate structure wherein the instant invention is directed to the plurality of electronic elements populating an element substrate.

Regarding claim 15, Koyama et al. further **teaches** an electronic apparatus including the transparent substrate of claim 9, with the application of the said substrate in a display device and electronic device using the same.(pg. 1, para. 0001).

6. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mikami et al. taken with Komiya in view of Tsumura et al. taken with Hayashi in view of Martin as applied to claim 11 in item 4 hereinabove, and further still in view of Nicholas (USP 5,490,002).

Regarding claim 12, Mikami et al. taken with Komiya in view of Tsumura et al. taken with Hayashi in view of Martin **does not teach** the method step wherein electrically disconnecting the electro-optical material placement area that does not operate from the corresponding active element is carried out by laser.

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Nicholas teaches active matrix display devices having bidirectional non-linear adjacent pixel (col. 2, lines 31-67 and col. 3, lines 1-47); Nicholas further **teaches** the method step wherein electrically disconnecting the electro-optical material placement area that does not operate from the corresponding active element is carried out by laser.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to provide to the device as taught by Mikami et al. taken with Komiya in view of Tsumura et al. taken with Hayashi taken in view of Martin the feature as taught by Nicholas in order to put in place the means and methodology to disconnect the electro-optical material placement area that does not operate from the corresponding active element area.

Allowable Subject Matter

7. Claims 3-6, 14 and 178-20 are allowed.

8. Relative to claim 3, the major difference between the teachings of the prior art of record (Pub. No. US 2003/0111966, Mikami et al.; Pub. No. US 2003/0030601, Komiya and US 2003/0169379, Tsumura et al.) and that of the instant invention is that said prior art of record **does not teach** an electro-optical device, comprising: a plurality of pixel circuits including a pixel circuit in which at least two electro-optical elements are electrically connected in parallel with an active element.

Regard claim 4, the major difference between the teachings of the prior art of record and that of the instant invention is that said prior art of record **does not teach** an electro-optical device, comprising: the plurality of unit pixels each including a control electronic element which is electrically disconnected from the electro-optical elements.

Relative to claim 17, the major difference between the teachings of the prior art of record and that of the instant invention is that said prior art of record **does not teach** an electronic device, comprising a plurality of unit circuits including a unit circuit in which at least two active elements are electrically connected in parallel with an electronic element.

Regard claim 18, the major difference between the teachings of the prior art of record and that of the

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instant invention is that said prior art of record **does not teach** an electronic device comprising: a plurality of unit circuits including a unit circuit in which at least two electronic elements electrically connected in parallel are disposed in accordance with at least two active elements electrically connected in parallel.

Relative to claim 19 the major difference between the teachings of the prior art of record and that of the instant invention is that said prior art of record **does not teach** an electro-optical device, comprising a the plurality of pixel circuits including a pixel circuit in which at least two active elements are electrically connected in parallel with an electro-optical element.

Regard claim 20, the major difference between the teachings of the prior art of record and that of the instant invention is that said prior art of record **does not teach** an electro-optical device, comprising a the plurality of pixel circuits including a pixel circuit in which at least two electro-optical elements electrically connected in parallel are disposed in accordance with at least two active elements electrically connected in parallel.

Response to Applicant's Remarks

9. Regarding Applicant's remarks relative to the 112 rejection of claims 9, 10 and 15, with the cancellation of claim 10 and the amendment to claim 9, the 112 rejection is herewith withdrawn and claims 9 and 15 had been considered in this action as set forth in item 5, hereinabove.

Applicant's arguments file January 17, 2007 relative to claims 1-2 and 13 have been fully considered but they are not persuasive. The limitation "the plurality of unit circuits including a unit circuit in which at least two electronic elements are electrically connected parallel with an active element" was introduced as part of the amendment to claim 1 as opposed to being included in the original version of claim 1, said limitation is considered in claim 1 of this action.

Applicant's remarks regarding claim 4 are moot in light of the allowance of claim 4.

Applicant's arguments relative to claims 7, 8, 11 and 16 have been fully considered but they are not persuasive. The limitation "at least one electro-optical material placement area in which the electro-optical material does not operate, among the plurality of operational electro-optical material placement areas"; this limitation is taught by Martin et al. (USP 6,356,248), (col. 5, lines 44-48 and Fig. 3). Referring to Fig. 3, the space (item 52) between the pixel areas (items 16) and column electrodes (18) are identified as "the horizontal space between column electrodes 18 define first inactive regions (53) in the electro-optical material, i.e., regions in which the optical properties of the electro-optical material are not controlled"

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Pub. No.	US 2003/01932286	Ottermann et al.
Pub. No.	US 2002/0058399	Sato et al.
Pub. No.	US 2003/0169247	Kawabe et al.

Final Action

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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To Respond

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vincent E. Kovalick whose telephone number is 571-272-7669. The examiner can normally be reached on Monday-Thursday 7:30- 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on 571-272-7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Vincent E. Kovalick
April 4, 2007



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